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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/957,709	10/24/1997	HOLLY HOGREFE	1486/41363CP	2438

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EXAMINER
RAMIREZ, DELIA M

ART UNIT	PAPER NUMBER
1652	

DATE MAILED: 02/27/2002

25

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	08/957,709	HOGREFE ET AL.	
	Examiner	Art Unit	
	Delia M. Ramirez	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 July 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9,16,17,19-22,46,59-66,77-80,85,87-92 and 95-97* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9,16,17,19-22,46,59-66,77-80,85,87-92 and 95-97* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10/24/97* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Status of the Application

Claims 9, 16-17, 19-22, 46, 59-66, 77-80, 85, 87-92, and 95-97 are pending.

Please note that the instant application is no longer being examined in Art Unit 1655.

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission in Paper No. 19, filed on 8/22/2000 has been entered.

Rejections and/or objections not reiterated from previous office actions are hereby withdrawn.

Drawings

1. The drawings submitted on 10/24/97 have not been reviewed. They cannot be scanned because they contain dark backgrounds. Applicants are requested to submit drawings suitable for electronic reproduction.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 9, 16, 17, 19, 20, 22, 59, 61, 63, 79, 85, and 95-96 (claims 21-22 dependent thereon) are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to

particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claims 9, 16, 61, 63 are indefinite in the recitation of "protein complex" or "PEF complex" as it vague and unclear absent a statement defining the term "complex". Since the term "complex" does not indicate how two or more elements are combined, one of skill in the art cannot determine if a "protein complex" or "PEF complex" is merely a non-covalent mixture of proteins or if the elements of the complex are covalently bound to each other. Also, the term "PEF complex" is indefinite because it is not clear if other molecules besides proteins are encompassed by the language "polymerase enhancing factor". In addition, the specification does not define the term "protein complex" or "PEF complex". It is suggested that the term "complex" be clearly defined in the claim or more clear and unambiguous language be used, for example, "mixture".

5. Claims 9 and 19 (claims 20-22 dependent thereon) are indefinite in the recitation of "wholly or partially synthetic proteins" as it is unclear absent a statement indicating what the term "synthetic protein" means. The term "synthetic" when related to polypeptides is usually associated in the art with chemical synthesis of polypeptides from amino acid monomers. It is not common in the art to obtain entire proteins by chemical synthesis but rather by recombinant expression in a host cell or by isolating them from their natural sources. Therefore, it is not clear how a protein can be "wholly synthetic". Also, it is not clear how can a protein be "partially synthetic" since that would require producing part of a protein in a cell and the rest added by chemical synthesis.

6. Applicants argue that the skilled artisan would readily understand that the term "wholly or partially synthetic protein" means a protein generated, at least in part, by synthetic processes including chemical or biochemical synthesis, rather than a protein isolated from nature. These arguments are not found persuasive because as explained previously, it is not common in the art to obtain entire proteins by chemical synthesis. In addition, the specification does not teach how the "partially synthetic protein" of the instant invention can be made or how could one of skill in the art can distinguish between a protein made "synthetically" from one made recombinantly. The specification merely states that "wholly and partially synthetic proteins" are also within the scope of the instant invention. It is suggested that the term "recombinant" be used if Applicant's intended protein is made by recombinant DNA technology.

7. Claim 9 is indefinite in the recitation of "mixture of one" as it is unclear how a mixture can be made of only one element.

8. Claims 17, 20, and 96 are indefinite in the recitation of "a protein having a sequence of amino acids at or within about 20 amino acids from the amino terminal end comprising one of SEQ ID NO: 11 or 69" as it is unclear what the meaning of this language is. It is not clear from the claims as written, which is the sequence being described in the claims. It is suggested that Applicants clearly indicate the sequence corresponding to the protein being claimed. For examination purposes, the language "a protein having a sequence of amino acids at or within about 20 amino acids from the amino terminal end comprising one of SEQ ID NO: 11 or 69" will be interpreted as "a protein having a sequence comprising SEQ ID NO: 11 or 69.

9. Claim 19 is indefinite in the recitation of "a composition of matter according to claim 1" because it depends on a cancelled claim.

10. Claim 19 is indefinite in the recitation of "said component" because there is no antecedent basis for the component.

11. Claim 22 is indefinite in the recitation of "further comprising a subunit encoded by a DNA having the nucleotide sequence of SEQ ID NO: 70" as it is unclear how claim 22 further limits claim 21. Claim 21 is directed to a composition of matter comprising a protein with an amino acid sequence according to SEQ ID NO: 71. This amino acid sequence is encoded by the polynucleotide sequence of SEQ ID NO: 70. Therefore, it is not clear how a composition of matter comprising the polypeptide of SEQ ID NO: 71 can further comprise the same polypeptide.

12. Claim 59 is indefinite in the recitation of "DNA construct comprising a sequence encoding PEF protein P45" as it is unclear absent a sequence identifier. It is suggested that Applicants clearly indicate the sequence being recited by including a numerical sequence identifier (i.e. SEQ ID NO: #).

13. Claim 85 is indefinite in the recitation of "a protein having PEF activity comprising one or more of SEQ ID NO: 72-81" as it is unclear how a protein can have more than one sequence. It is suggested that Applicants clearly indicate the intended sequence. For examining purposes, claim 85 will be interpreted as being directed to any protein comprising an amino acid sequence from the group consisting of SEQ ID NO: 72-81.

14. Claims 95-96 are indefinite in the recitation of "hybridizes ....under stringent conditions" as it is unclear absent a statement indicating the conditions under which the hybridization reaction is performed. Nucleic acids which will hybridize under some hybridization conditions will not necessarily hybridize under different conditions.

15. Applicants argue that amending the claim to read "under stringent conditions" is sufficient to overcome a previous 35 U.S.C. 112, second paragraph rejection because the specification provides an example of stringent conditions in page 31, lines 31-33. These arguments are not found persuasive because what constitutes "stringent conditions" has not been clearly defined in the specification. The example described in the specification in page 31, lines 31-33 only mentions the experimental conditions used in the hybridization/wash protocol but does not indicate that this corresponds to "stringent conditions", therefore the term "stringent condition" has not been defined in the specification or the claims. It is suggested that Applicants indicate the experimental conditions under which the hybridization/wash reaction takes place in the claim.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

16. Claims 9, 19 and 80 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for P45 and its 17-18 KDa monomer from *P. furiosus*, does not reasonably provide enablement for all analogs of P45 or any protein which can enhance polymerase activity. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The criteria for undue experimentation, summarized in *re Wands*, 8, USPQ2nd 1400 (Fed. Cir. 1988) are: 1) quantity of experimentation necessary, 2) the amount of direction or

guidance presented, 3) the presence and absence of working examples, 4) the nature of the invention, 5) the state of prior art, 6) the relative skill of those in the art, 7) the predictability or unpredictability of the art, and 8) the breath of the claims.

Claims 9, 19 and 80 are so broad as to encompass any variant of P45 or any variant of any protein which can enhance polymerase activity. The scope of the claims is not commensurate with the enablement provided by the disclosure with regard to the extremely large number of polypeptides broadly encompassed by the claim. Since the amino acid sequence of a polypeptide determines its structural and functional properties, predictability of which changes can be tolerated in a polypeptide's amino acid sequence to obtain the desired activity requires knowledge of and guidance with regard to which amino acids, if any, are tolerant of modification and which ones are conserved. Furthermore, detailed knowledge of how the polypeptide's structure relates to its function is required. As taught by Broun et al. (Science 282:1315-1317, 1998), as few as four amino acid substitutions can convert an oleate 12-desaturase into a hydrolase and as few as six amino acid substitutions can transform a hydrolase into a desaturase. In the instant application, the disclosure is limited to the polypeptide of SEQ ID NO: 19 and 71 and the corresponding polynucleotides as set forth in SEQ ID NO: 18 and 70, respectively. The specification does not disclose any information about the critical structural elements within the amino acid sequences of SEQ ID NO: 19 and 71 that are required to maintain the desired polymerase-enhancing function. No examples of "analogs" of P45 or polymerase enhancing proteins with the desired function are provided either.

The current state of the art indicates that small amino acid changes can drastically change the function of a polypeptide. In addition, it is known in the art that sequence identity alone is

insufficient to accurately predict function. Van de Loo et al. (Proc. Natl. Acad. Sci. 92:6743-6747, 1995) teaches that polypeptides of approximately 67% homology to a desaturase from *Arabidopsis* where found to be hydroxylases once tested for activity. Therefore, due to the lack of relevant examples, the amount of information provided, the lack of knowledge about the critical structural elements required to maintain the desired function, and the unpredictability of the prior art in regard to function based on homology, one of ordinary skill in the art would have to go through the burden of undue experimentation in order to screen and isolate those analogs with the desired activity. Thus, Applicant has not provided sufficient guidance to enable one of ordinary skill in the art to make and use the invention in a manner reasonably correlated with the scope of the claims.

17. Applicants argue that the term "analog" is as precise as reasonably possible. This argument however is moot in view of the new grounds of rejection.

18. Claim16 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a polymerase enhancing protein of 17-18 KDa from *P. furiosus* with an amino acid sequence according to SEQ ID NO: 71, does not reasonably provide enablement for any protein from *P. furiosus* having a molecular weight of 17-18 KDa. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The criteria for undue experimentation, summarized in *re Wands*, 8, USPQ2nd 1400 (Fed. Cir. 1988) are: 1) quantity of experimentation necessary, 2) the amount of direction or guidance presented, 3) the presence and absence of working examples, 4) the nature of the

invention, 5) the state of prior art, 6) the relative skill of those in the art, 7) the predictability or unpredictability of the art, and 8) the breath of the claims.

Claim 16 is directed to a "protein complex" possessing polymerase enhancing activity further comprising at least any one protein from *P. furiosus* having a molecular weight of 17-18 KDa in denatured monomeric form. The scope of the claims is not commensurate with the enablement provided by the disclosure with regard to the unknown number of polypeptides in *P. furiosus* having a molecular weight of 17-18 KDa broadly encompassed by the claim. Since the amino acid sequence of a polypeptide determines its structural and functional properties, it is unpredictable which polypeptides from *P. furiosus* with a molecular weight of 17-18 KDa can be used to enhance polymerase activity. Applicant's disclosure only provides information on one *P. furiosus* protein having a molecular weight of 17-18 KDa with polymerase-enhancing properties.

As indicated previously, the current state of the art indicates that at the amino acid level, even small amino acid changes can drastically change the function of a polypeptide. It is therefore, reasonably to expect extreme variability in regard to function within polypeptides of similar molecular weight. Thus, due to the lack of relevant examples, the amount of information provided, and the unpredictability of the prior art in regard to function based on molecular weight, one of ordinary skill in the art would have to go through the burden of undue experimentation in order to screen and isolate those polypeptides of 17-18 KDa in *P. furiosus* with the desired activity. Thus, Applicant has not provided sufficient guidance to enable one of ordinary skill in the art to make and use the invention in a manner reasonably correlated with the scope of the claims.

19. Claim 64 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a P45 protein with an amino acid sequence according to SEQ ID NO: 71, does not reasonably provide enablement for any fusion protein comprising a P45 protein. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The criteria for undue experimentation, summarized in *re Wands*, 8, USPQ2nd 1400 (Fed. Cir. 1988) are: 1) quantity of experimentation necessary, 2) the amount of direction or guidance presented, 3) the presence and absence of working examples, 4) the nature of the invention, 5) the state of prior art, 6) the relative skill of those in the art, 7) the predictability or unpredictability of the art, and 8) the breath of the claims.

Claim 64 is directed to any fusion protein comprising a P45 protein. The breadth of the claims is not commensurate with the enablement provided by the disclosure with regard to the infinite number of fusion proteins broadly encompassed by the claim. Since the amino acid sequence of a polypeptide determines its structural and functional properties, it is not expected that fusing any protein/polypeptide to a P45 protein will always result in a fusion protein with the ability to enhance polymerase activity. While it is true that some proteins can be fused to small peptides for purification purposes without affecting its original function, it is also well known in the art that one can fuse two or more polypeptides each with different functionalities and create a fusion protein with unique characteristics and functionality (e.g. immunotoxins). Applicant's disclosure does not provide any information as to which proteins or polypeptides can

be fused to a P45 protein. No working examples of fusion proteins of a P45 protein are provided either.

As indicated previously, the current state of the art indicates that some fusion proteins can have unique characteristics and functionalities which are different from those of the individual polypeptides comprising the fusion protein. It is therefore, reasonably to expect extreme variability in regard to function within all possible fusion proteins comprising a P45 protein. Thus, due to the lack of relevant examples, the amount of information provided, and the unpredictability of the prior art in regard to function of fusion proteins, one of ordinary skill in the art would have to go through the burden of undue experimentation in order to screen and isolate those fusion proteins with polymerase-enhancing activity. Thus, Applicant has not provided sufficient guidance to enable one of ordinary skill in the art to make and use the invention in a manner reasonably correlated with the scope of the claims.

20. Claims 87-92 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a polymerase-enhancing *P. furiosus* protein with homology to dUTPases and dCTP deaminases, does not reasonably provide enablement for any protein or protein extract with dUTPase activity from *Thermus thermophilis*. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The criteria for undue experimentation, summarized in *re Wands*, 8, USPQ2nd 1400 (Fed. Cir. 1988) are: 1) quantity of experimentation necessary, 2) the amount of direction or guidance presented, 3) the presence and absence of working examples, 4) the nature of the

invention, 5) the state of prior art, 6) the relative skill of those in the art, 7) the predictability or unpredictability of the art, and 8) the breath of the claims.

Claims 87-92 are directed to any protein or protein extract from *T. thermophilis* with dUTPase activity. The breadth of the claims is not commensurate with the enablement provided by the disclosure with regard to proteins from *T. thermophilis* with dUTPase activity encompassed by the claim. Applicant's disclosure provides the amino acid sequence of a polymerase enhancing P45 protein from *P. furiosus* and indicates that by homology one of skill in the art can identify similar proteins in many organisms including *T. thermophilis* (page 44, lines 18-26). The specification does not provide any guidance or examples of *T. thermophilis* dUTPases. No information has been provided on the critical structural elements required to identify a protein with dUTPase activity such as catalytic domain, binding domain, etc. in *T. thermophilis* either.

The current state of the art teaches that small amino acid changes can drastically change the function of a polypeptide and that sequence identity alone is insufficient to accurately predict function (see the teachings of Broun et al., Van de Loo et al.). Therefore, due to the lack of relevant examples, the amount of information provided, the lack of knowledge about the critical structural elements required to maintain the desired function, and the unpredictability of the prior art in regard to function based on homology, one of ordinary skill in the art would have to go through the burden of undue experimentation in order to screen and isolate *T. thermophilis* proteins with the desired activity. Thus, Applicant has not provided sufficient guidance to enable one of ordinary skill in the art to make and use the invention in a manner reasonably correlated with the scope of the claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

21. Claim 85 is rejected under 35 U.S.C. 102(a) as being anticipated by Bult et al. (PIR accession number F64353, September 16, 1996) and Bult et al. (PIR accession number E64437, September 13, 1996). Bult et al. teaches two polypeptides from *Methanococcus jannaschii* with dCTP deaminase activity which comprise all of SEQ ID NO: 74 or 75. According to Applicant's disclosure, (pages 41-45, Example 9) dCTP deaminases and dUTPases can be polymerase-enhancing factors. Claim 85 is directed to a protein with polymerase enhancing ability comprising the amino acid sequence from the group consisting of SEQ ID NO: 72-81, therefore, the polypeptides of Bult et al. anticipate claim 85 as written.

22. Claim 85 is rejected under 35 U.S.C. 102(b) as being anticipated by Kletzin (Swiss-Prot accession number Q02103, April 1, 1993), Wang et al. (Swiss-Prot accession number P28248, December 1, 1992), Lundberg et al. (Swiss-Prot accession number P06968, April 1, 1988), Gadsden et al. (Swiss Prot accession number P33317, February 1, 1994), Mercer et al. (Swiss-Prot accession number P14597, April 1, 1990), and Albrecht et al. (Swiss-Prot accession number Q01034, April 1, 1993). Kletzin teaches a polypeptide from *Desulforolobus ambivalens* with dCTP deaminase activity comprising all of SEQ ID NO: 76. Wang et al. teaches a polypeptide from *E. coli* with dCTP deaminase activity comprising all of SEQ ID NO: 77. Lundberg et al.

teaches a polypeptide from *E. coli* with dUTPase activity comprising all of SEQ ID NO: 78. Gadsden et al. teaches a polypeptide from *S. cerevisiae* with dUTPase activity comprising all of SEQ ID NO: 79. Mercer et al. teaches a polypeptide from parapoxvirus with dUTPase activity comprising all of SEQ ID NO: 80. Albrecht et al. teaches a polypeptide from herpesvirus saimiri with dUTPase activity comprising all of SEQ ID NO: 81. According to Applicant's disclosure, (pages 41-45, Example 9) dCTP deaminases and dUTPases can be polymerase-enhancing factors . Claim 85 is directed to a protein with polymerase enhancing ability comprising the amino acid sequence from the group consisting of SEQ ID NO: 72-81, therefore the polypeptides of Kletzin, Wang et al., Lundberg et al., Gadsden et al., Mercer et al., and Albrecht et al. anticipate the instant claim as written.

Double Patenting

23. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

24. Claims 9, 16-17, 19-22, 46, 59-66, 77-80, 85, 87-92, 95-97 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 5-9, 13-20, 23-24, 26-34, and 40-41 of U.S. Patent No. 6,183,997. Although the

conflicting claims are not identical, they are not patentably distinct from each other because the claims in the issued U.S. patent are broadly drawn to any non-naturally occurring composition of matter wherein at least one component of the composition has polymerase enhancing activity, and to antibodies that bind to a protein having an amino acid sequence comprising SEQ ID NO: 19, 37-39, 41, 43-48. The claims in the instant application are drawn to a more limited species of the non-naturally occurring composition of matter and the same antibodies. Since SEQ ID NO: 44 and SEQ ID NO: 71 share a fragment of 85 identical amino acids, an antibody which binds to a protein comprising SEQ ID NO: 44 can conceivably bind a protein comprising SEQ ID NO: 71, therefore the antibodies claimed in the instant application and the U.S. patent are considered identical. In regard to the composition of matter of the instant application and the U.S. patent, the only difference is that the claims of the instant application refer to (1) a composition of matter wherein at least one of the components has a molecular weight of 17-18 KDa and comprises an amino acid sequence of SEQ ID NO: 71; and (2) a composition of matter wherein the components are proteins derived from Thermus thermophilis with dUTPase activity. These compositions of matter are encompassed by the claims of the U.S. patent because (1) the component with a molecular weight of 17-18 KDa which comprises the amino acid sequence of SEQ ID NO: 71 has polymerase-enhancing activity (claim 1 of US patent) and (2) dUTPases are, according to the specifications of the U.S. patent and instant application, proteins with polymerase enhancing ability. In addition, claim 1 of the instant application broadly encompasses any polymerase-enhancing protein from any source. Thus, the broad claims of U.S. patent No. 6,183,997 are not patentably distinct from the more limited claims of the instant application (see *Eli Lilly & Co. v Barr Laboratories, Inc.* (CA FC) 55 USPQ2d 1609).

Conclusion

25. No claim is in condition for allowance.

Certain papers related to this application may be submitted to Art Unit 1652 by facsimile transmission. The FAX number is (703) 308-4556. The faxing of such papers must conform with the notices published in the Official Gazette, 1156 OG 61 (November 16, 1993) and 1157 OG 94 (December 28, 1993) (see 37 CFR 1.6(d)). NOTE: If Applicant submits a paper by FAX, the original copy should be retained by Applicant or Applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED, so as to avoid the processing of duplicate papers in the Office.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Delia M. Ramirez whose telephone number is (703) 306-0288. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Ponnathapura Achutamurthy can be reached on (703) 308-3804. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

Delia M. Ramirez, Ph.D.
Patent Examiner
Art Unit 1652

DR
February 21, 2002

PONNATHAPU ACHUTAMURTHY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600